

LIST OF CURRENT CLAIMS

1-15 (Cancelled).

16. (New) Machine with an improved bearing lubrication, comprising a housing (2) and a rotor (5) which is provided on a shaft (6), provided in a rotatable manner in the housing (2) by means of oil-lubricated bearings (7), wherein, inside the housing (2), lubrication ducts (14) are provided to supply and discharge oil to and from the bearings (7), and further wherein cooling channels (21, 15) are provided to supply and discharge a cooling agent, which cooling channels (21, 15) open opposite to the shaft (6), in a place between the rotor (5) and a bearing (7) and wherein the cooling channels (21, 15) are connected to the lubrication ducts (14).

17. (New) Machine with an improved bearing lubrication according to claim 16, wherein the rotor (5) on the above-mentioned place opposite to the cooling channels (21, 15) is provided with one or several grooves (22).

18. (New) Machine with an improved bearing lubrication according to claim 17, wherein the cooling channels (21, 15) extend through a gasket (18), provided on both sides of the grooves (22) and having sealing lips (20) directed towards the shaft (6).

19. (New) Machine with an improved bearing lubrication according to claim 18, wherein the clearance between the sealing lips (20) and the shaft (6) is very small.

20. (New) Machine with an improved bearing lubrication according to claim 18, wherein the cooling channels (21, 15) open between the sealing lips (20).

21. (New) Machine with an improved bearing lubrication according to claim 20, wherein the cooling channels (21, 15) are tangentially directed onto the shaft (6) at their outlet at the shaft (6).

22. (New) Machine with an improved bearing lubrication according to claim 21, wherein the cooling channels (21, 15) are oriented such that they inject the cooling agent according to the sense of rotation of the shaft (6).

23. (New) Machine with an improved bearing lubrication according to claim 16, wherein the shaft (6) is provided with a thermal bridge (30) between a cooled part and the bearing.

24. (New) Machine with an improved bearing lubrication according to claim 23, wherein the shaft (6) is made of several parts, including bearing-mounted parts (31) and non-bearing-mounted parts (32), and wherein the thermal bridge (30) is formed of a ring (33) made of a thermally insulating material, which is provided between the bearing-mounted and non-bearing-mounted parts (31 and 32).

25. (New) Machine with an improved bearing lubrication according to claim 23, wherein the thermal bridge (30) is formed of a bush (34) made of a thermally insulating material, which is provided between the shaft (6) and the bearing (7).

26. (New) Machine with an improved bearing lubrication according to claim 16, wherein the lubrication ducts (14) and the cooling channels (21, 15) are provided in a bearing cap (4) comprising part of the housing (2).

27. (New) Machine with an improved bearing lubrication according to claim 26, wherein the bearing cap (4) is provided with cooling channels (35).

28. (New) Machine with an improved bearing lubrication according to claim 27, wherein the lubrication ducts (14), the cooling channels (21, 15) of the shaft (6) and the cooling channels (35) of the bearing cap (4) are connected to each other.

29. (New) Machine with an improved bearing lubrication according to claim 26,

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Preliminary Amendment

wherein the machine is an electric motor (1) or generator, and includes winding heads (38) of electric coils (37) encased in a heat-conducting material (39) which makes contact with the bearing cap (4).